

IN THE CLAIMS

Please replace any previous listing of the claims with the following replacement listing of the claims:

Replacement Listing of the Claims

1. (Currently amended) A method for controlling a time synchronization relationship between a communications network time and a master module located at a node connected to said communications network for providing a module reference time, said method comprising:

in said master module:

determining a time synchronization function is enabled;

determining a time difference between said communications network time and said module reference time ~~provided by said module;~~

determining that said determined time difference is greater than a first limit, and less than or equal to a second limit;

determining a rate of correction based on a predetermined synchronization interval and said determined time difference; ~~and~~

automatically adjusting said network communications time to synchronize with said module reference time gradually, using said correction rate, over said predetermined synchronization interval; and

periodically communicating said network communications time to one or more other modules connected to said communication network.

2. (Original) The method of claim 1, wherein said gradually adjusting results in a reduction of said time difference between said communications network time and said module reference time that is substantially constant and without a time reversal.

3. (Original) The method of claim 1, further comprising:

determining a system change is requested; and

in response to said system change request, immediately synchronizing, automatically, said communications network time and said module reference time.

4. (Original) The method of claim 3, wherein said system change is selected from a group of actions consisting of: a module being initialized for providing said module reference time, a predetermined next synchronization interval occurring, a user-initiated time synchronization occurring, and a Daylight Savings Time event occurrence.

5. (Original) The method of claim 1, further comprising:

determining that said time difference between said communications network time and said module reference time is greater than a third limit that is greater than said second limit; and

in response to said time difference being greater than said third limit, taking no automatic action to synchronize said time difference between said communications network time and said module reference time.

6. (Canceled)

7. (Currently amended) A storage medium having computer readable program instructions embodied therein for providing a method for controlling a time synchronization relationship between a communications network time and a master module located at a node connected to said communications network for providing a module reference time, said storage medium comprising:

program instructions that control said master module to:

determinefor determining a time synchronization function is enabled;

determine program instructions for determining a time difference between said communications network time and said module reference time provided by said module;

determine program instructions for determining that said determined time difference is greater than a first limit, and less than or equal to a second limit;

determine program instructions for determining a rate of correction based on a predetermined synchronization interval and said determined time difference; and

program instructions for automatically adjusting said network communications time to synchronize with said module reference time gradually, using said correction rate, over said predetermined synchronization interval; and

periodically communicate said network communications time to one or more other modules connected to said communication network.

8. (Original) The storage medium of claim 7, wherein said program instructions for gradually adjusting results in a reduction of said time difference between said communications network time and said module reference time that is substantially constant and without a time reversal.

9. (Original) The storage medium of claim 7, further comprising:

program instructions for determining a system change is requested; and

program instructions for, in response to said system change request, immediately and automatically synchronizing said communications network time and said module reference time.

10. (Original) The storage medium of claim 9, wherein said system change is selected from a group of actions consisting of: a module being initialized for providing said module reference time, a predetermined next synchronization interval occurring, a user-initiated time synchronization occurring, and a Daylight Savings Time event occurrence.

11. (Original) The storage medium of claim 7, further comprising:

program instructions for determining that said time difference between said communications network time and said module reference time is greater than a third limit that is greater than said second limit; and

program instructions for, in response to said time difference being greater than said third limit, taking no automatic action to synchronize said time difference between said communications network time and said module reference time.

12. (Currently amended) A master module for controlling a time synchronization relationship between a communications network time and a module reference time of a node connected to said communications network, said master module comprising:

a processor;

a network interface that provides a communication interface to said communications network;

a bus interface that provides a communication interface to a host processor; and

a system clock subsystem that provides said module reference time and that controls a time synchronization function to reduce a time difference between said communications network time and said module reference time, wherein said time synchronization function of said system clock subsystem:

determines a time synchronization function is enabled;

determines said time difference between said communications network time and said module reference time provided by said master module;

determines that said determined time difference is greater than a first limit, and less than or equal to a second limit;

determines a rate of correction based on a predetermined synchronization interval and said determined time difference; and

automatically adjusts said network communications time to synchronize with said module reference time gradually, using said rate of correction, over said predetermined synchronization interval; and

periodically communicates said network communications time to one or more other modules connected to said communication network.

13. (Original) The module of claim 12, wherein said time synchronization function of said system clock subsystem reduces said time difference substantially constant and without a time reversal.

14. (Canceled)

15. (Previously presented) The module of claim 12, wherein said time synchronization function of said system clock subsystem further:

determines a system change is requested; and

in response to said system change request, immediately synchronizes, automatically, said communications network time and said module reference time.

16. (Original) The module of claim 15, wherein said system change is selected from a group of actions consisting of: a module being initialized for providing said module reference time, a predetermined next synchronization interval occurring, a user-initiated time synchronization occurring, and a Daylight Savings Time event occurrence.

17. (Previously presented) The module of claim 12, wherein said time synchronization function of said system clock subsystem further:

determines that said time difference between said communications network time and said module reference time is greater than a third limit that is greater than said second limit; and

in response to said time difference being greater than said third limit, takes no automatic action to synchronize said time difference between said communications network time and said module reference time.

18. (Previously presented) The module of claim 12, wherein said time synchronization function including said predetermined synchronization interval operates on a periodic basis.